

**TC4000B**  
**Free Space Test Cell**  
**27MHz-4.2GHz**

The Model TC4000B test cell is one of a series of ARcell test cells that bridge the gap between size limited TEM (transverse electromagnetic) cells and expensive anechoic chambers for making pre-compliance radiated immunity and radiated emissions measurements on large test objects. The interior of the ARcell enclosure, lined with a radio frequency absorbing material, creates a self-contained, semi-anechoic enclosure that includes field launching/receiving devices. An internal log-periodic antenna acts as a launching/receiving device at higher frequencies, while an (optional) bowtie antenna is used at the lower frequencies. Vertical or horizontal polarization is user selected.

The high-efficiency launching device allows 80-4.2GHz, 10V/m field strengths with 80% AM modulation to be generated at the preferred 3 meter distance with a 150 watt RF source (Amplifier Research Model 150W1000) for immunity compliance testing. Testing from 27-80MHz is facilitated by adding the optional Model BT3400 Bow-Tie Antenna.

Radiated emissions is implemented by first calibrating the ARcell using a known emitter. This is usually accomplished by using a calibrated noise emitter (CNE), such as the AR model NE3000. As an alternative for *verification* of a production product, the emissions received from the production product can be compared to emissions from a similar product with known emissions characteristics. In each case, the object is moved to detect the maximum emitted signal levels.

Refer to AR Application Note No. 34 for information on use of the ARcell for both immunity and emissions testing. Amplifier Research offers test systems (ARcell Test System) for use in immunity and emissions evaluation using the TC4000B.

Features of the cell include:

- large access door for installation and removal of the equipment under test (EUT).
- viewing window (located in the access door) to observe the EUT.
- interior light with external on/off switch (requires 110 or 220 VAC power at AC power external connector).
- 16 Amp resettable circuit breaker
- door-open interlock
- user-modifiable access plate
- 3 meter Antenna to EUT Distance

The Model TC4000B test cell is assembled at the customer's site.

**SPECIFICATIONS**  
**Model TC4000B**

EUT SIZE.....	Up to 1.0 m/side (39.3 in/side)
ACCESS DOOR OPENING (W x H).....	1.0 x 1.8 m (39.3 x 70.4 in)
USABLE FREQUENCY RANGE.....	27MHz-4.2GHz (27-80 MHz use requires optional bowtie antenna)
INPUT RF POWER .....	500 watts maximum
FIELD UNIFORMITY.....	0 to +6dB at a minimum of 7 of the 9 test probe positions located in a 1.0 x 1.0m test plane, at 80% or more of the IEC 1000-4-3:1995 test frequencies, from 80 to 1000MHz
POLARIZATION.....	Vertical or Horizontal
<b>CONNECTORS</b>	
RF Input .....	N (f)
Auxiliary +12VDC output (switched).....	BNC (f)
AC Power External (110 or 220VAC).....	16 Amp industrial plug with cable (user supplies plug to wall outlet)
AC Power On Indicator.....	Amber
Earthing Stud .....	8.0 mm (0.315 in)
<b>ENCLOSURE PENETRATIONS FOR USER ACCESS</b>	
Door-Open Interlock .....	BNC, filtered
AC Power Internal .....	2 x IEC 10A sockets
RF.....	N (f) through wall, outside and inside
Signal.....	25 pin D type, filtered, female outside, male inside, 200V, 3A, 2.5kpF
Waveguide Below Cutoff .....	2.2 cm (0.87 in) diameter tube (for fiber- optic cables and other non-conductive access.)
DIMENSIONS (W x H x L) .....	2.4 x 2.6 x 5.7 m (94.3 x 102.2 x 224.4 in)